

Guide to Integrated Investigations of Lead and Copper in Home Drinking Water

Using data-driven approaches to reduce exposure to lead and copper in drinking water.

Attachment 4: Filter Performance Evaluation (Approved)

1.0 Water Sample Collection for Filter Performance Evaluation

Use 250 mL size sterile bottle to collect each water sample pre- and post-filtration.

1.1 If Pur faucet mounted filter is installed

- **The first water sample** is a filtrate collected as a grab sample filtered through the filter without flushing. This sample represents the daily usage of the filter.
- The **second** and **third samples** represent the filter challenge assessment and they are collected after flushing the filter for 2 minutes.
- Before collecting **the second water sample**, flush Pur faucet mounted filter for 2 minutes and then collect a filtrate sample.
- While water is still running, use the filter bypass to collect **the third sample**.

1.2 If the home visited is using a Pur, ZeroWater or Brita pitcher:

- Collect **the first water sample** from filtered water in the pitcher, then label the bottle using a post-filtration code. Once the first sample has been collected, empty the pitcher.
- Flush the faucet water for 2 min. If you are using the same faucet used to collect sequential samples, you can proceed to collect the two duplicate samples since the faucet was flushed.
- Collect two duplicate sample using two 250 mL size bottles from the kitchen faucet used to refill the pitcher.

Note:

if there is no filtered water in the pitcher reservoir,

- Identify the water tap used to fill the pitcher,
- Fill the pitcher up to a volume of 250 mL,
- Wait until all the volume has been filtered,
- Collect the first pitcher filtered water sample,
- Once this procedure has been completed, continue to the collection of the next water sample.
- **Second water sample:** Take the first duplicate 250 mL water sample and filter the water using the pitcher, then collect the filtrate and label the bottle using a post-filtration code.

Note:

- If you are collecting unfiltered water sample from a different tap than one used to collect sequential samples, please run the tap for two minutes before collecting the second sample.
- **Third water sample:** Take the second duplicate 250 mL water sample collected from the kitchen faucet used to refill the pitcher, then label it using the pre-filtration code

Notes for pitcher and faucet mounted filters:

If the faucet mounted or pitcher **usage indicator light is red**,

- Follow the protocol and collect all three samples as indicated,
- Make sure that you take note of collecting a sample on a red filter usage indicator light,
- Use the survey sheet of the visited residents to record any other observation at the house
- Use filter labels with R after the sample number to indicate that the sample was collected on red light indicator e.g. Faucet mounted filters: POST-POU-H001-1R and PRE-POU-H001-3R and Pitcher: POST-PTR-H001-1R and PRE-PTR-H001-3R
- Follow the user guide manual for the POU filtration system to help the resident install a new cartridge,
- Then follow the protocol described above to collect three samples on the newly installed cartridges

1.3 Collected samples will be labeled using the following approach

Here we are providing an example on how to properly label collected samples. Home codes have been generated for all addresses scheduled for sampling. This example uses the assumption that the sanitarian is collecting samples from the first home and the code for this address has been designated as H001. Samples are collected at pre- or post-filtration, from a Pur faucet mounted filter or from a pitcher. Filters being sampled are commonly named Point-of-use (POU) filters. We used POU in sample code to note the type of filter of interest in our sampling.

- House code: H001
- Number 1,2, or 3 added to the house code (e.g. H001-1) indicates the type of samples collected. Numbers 1 and 2 represent post-filtration samples, while number 3 is a pre-filtration sample.
- Code POU will not change.
- Post- and pre- indicate type of sample collected in the context of filtration. “Post” is used for filtered water samples and “Pre” is used for unfiltered water sample.

For water samples collected from Pur faucet mounted filters:

- Sample 1 (first draw - post-filtration): POST-POU-H001-1
- Sample 2 (filtrate sampled after 2 min flushing – post-filtration): POST-POU-H001-2
- Sample 3 (Bypass unfiltered – pre-filtration): PRE-POU-H001-3

For samples collected from a Pur or Brita or ZeroWater Pitcher (PTR):

- Sample 1 (water in the pitcher – Post-filtration): POST-PTR-H001-1
- Sample 2 (1 filtrate of the duplicate – post-filtration): POST-PTR-H001-2
- Sample 3 (1 prefiltered of the duplicate– pre-filtration): PRE-PTR-H001-3

1.4 Home visits for sample collection

- For the first time, the sample will be to collect pre- and post-filtration samples from the kitchen faucet tap where Pur filter is mounted or a kitchen sink tap used to fill the pitcher.
- The second home visit will be determined based on the results.

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Attachment 5: Sanitarian Form for Filter Performance Assessment (Approved)

1.0 Sanitarian Form for Filter Challenge Assessment

This survey will be used by sanitarians tasked to collect samples for the filter challenge assessment study in homes in (name of sampled area).

Sample ID:

1.1 Category A: Faucet mounted filter

1. What faucet mounted filter brand are you using?

Answer: Brita Pur Others:

2. How long ago did you install this filter?

Answer: please select the appropriate response option:

- Days: 1, 2, 3, 4,5
- Weeks: 1, 2, 3, 4
- Months:1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
- Years:

3. What the status of your filter indicator light?

Green Yellow Red

If the filter status indicator is red, ask the following question:

- How long have you been using the filter with a red-light status?
please select the appropriate response option
- Days: 1, 2, 3, 4,5
- Weeks: 1, 2, 3, 4
- Months:1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

A. Time of latest cartridge change:

B. Filtered water usage (volume) before sample collection

C. if no, continue to the following question

4. Does the filter manifest installation defect (or faucet mounting related defect)?

1. Check to make sure the old aerator washer was removed and only the new adapter washer is being used.

Answer: Yes No

2. Make sure the faucet mounted filter is leveled to the faucet for the threaded mounting nut to attach to the faucet threading.

To avoid damaging the device, ask the owner to turn the faucet counterclockwise to check if the filter still needed to be tightened.

Answer: Yes No

5. Verify if water is leaking around the faucet adapter or threaded mounting nut

1. Check to see that the washer and screen are placed in the threaded mounting nut.

Answer: Yes No

2. If using an adapter, make sure the adapter is hand-tightened securely to the faucet.

Answer: Yes No

3. Check if water is leaking around the filter cover

Answer: Yes No

if the answer is yes, sample the filter in the conditions you found it, after sampling advise the owner to do the following:

Try tightening faucet mount back cover all the way until tight. If that doesn't solve the problem, remove the filter cartridge and reinstall the filter cartridge again.

6. Does the faucet have one control/handle for running cold and warm water through the same tap?

Answer: Yes No

Comments:

1.2 Category B: Pitchers

1. What type of pitcher brand are you using?

Answer: Brita Pur ZeroWQater Others:.....

2. Please check the indicator filter status:

Please select the appropriate response:

Answer: Green Yellow Red

If the filter status indicator is red, ask the owner,

How long have you been using the filter with a red-light status?

please select the appropriate response option:

- Days: 1, 2, 3, 4,5

- Weeks: 1, 2, 3, 4
 - Months: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
3. Check if the pitcher is leaking unfiltered water to the reservoir of filtered water
7. After the sample has been collected, visually confirm that unfiltered water is not running on wall of the filter cartridge to the reservoir of filtered water

Answer: Yes No

If the answer is yes, please ask the owner to check and make sure that the filter has been twisted firmly into place.

After water is no longer leaking, please collect a sample to represent water quality after the pitcher has been fixed.

8. Check if the pitcher does not have any leak under or on side of the pitcher

Answer: Yes No

4. How long ago did you replace the cartridge?

Answer: please select the appropriate response option:

- Days: 1, 2, 3, 4, 5
- Weeks: 1, 2, 3, 4
- Months: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
- Years: